REMARKS

Applicants thank the Examiner for the thorough examination of the application. The specification has been amended to correct a minor error. No new matter is believed to be added to the application by this Amendment.

Status Of The Claims

Claims 1-13 are pending in the application. The claims have been amended to improve their language. Claim 10 finds support at page 6, lines 1-2 of the specification. Claim 11 finds support at page 6, line 25 to page 7, line 1 of the specification. Claim 12 finds support at page 11, line 13 of the specification. Claim 13 finds support at page 22, line 22 of the specification.

Rejections Under 35 U.S.C. §103(a) Based on Schleuter

Claims 1-5, 7 and 8 are rejected under 35 U.S.C. 103(a) as being obvious over Schleuter (U.S. Patent 5,952,301) in view of Tanaka (U.S. Patent 5,978,638). The Examiner adds the teachings of Nakazawa (U.S. Patent 6,852,400) to the aforesaid rejection to reject claim 6. Claim 9 is also believed to be rejected over Schleuter and Tanaka, as can be inferred from the Examiner's comments at page 3, line 11 of the Office Action. Applicants traverse.

The Present Invention And Its Advantages

The present invention pertains to a three-layered seamless belt where the electrical conductivities (and other properties) are different in the three layers. The conductive belt of the present invention has a rigid resinous electroconductive base layer, an intermediate layer formed from an elastic layer made of an ionic-conductive elastomer, and a surface coating layer formed over the intermediate layer. The tensile modulus of elasticity of the base layer is set to a specified range. The volume electric resistance value of the base layer and that of the intermediate layer are set to a specified range, respectively. Therefore, the present invention can restrain the elongation of the conductive belt. Further, the conductive belt has a high elasticity and a small variation in its surface electric resistance.

Accordingly, when the inventive conductive belt is used as an intermediate transfer belt of an image forming apparatus (such as a printer, a copying apparatus, or a fax machine) it is possible to reduce any changes in the speed of the conductive belt to cope with high-speed operation. Further, the conductive belt has uniform electric resistance. Thus, the conductive belt is suitable for forming a high-quality images.

The present invention has many embodiments, and a typical embodiment can be found in claim 1:

1. (Currently Amended) A conductive belt comprising:
an electroconductive base layer made of a resin;
an ionic-conductive intermediate layer made of an elastomer; and
a surface coating layer,
wherein a tensile modulus of elasticity of said base layer is set to not less than 500 Mpa, and a volume electric resistance value thereof is not less than $10^6\Omega\cdot cm$ nor more than $10^{11}\Omega\cdot cm$; and

said intermediate layer is formed on an upper surface of said base layer, has a JIS A hardness less than 70, a thickness not less than 50μm nor more than 600μm, and a volume electric resistance value not less than $10^8\Omega\cdot$cm nor more than $10^{14}\Omega\cdot$cm.

Distinctions Of The Invention Over Schleuter, Tanaka and Nakazawa

Schleuter pertains to a polyimide seamed belt. The Examiner turns to column 3, lines 24-31 of Schleuter, which discusses a Young's modulus of 1 x 10^3 psi (6.89 MPa) to 1 x 10^6 psi (6,890 MPa), and an electroconductivity of 10^8 to 10^{11} ohm cm. Schleuter at column 8, lines 36-45 discusses an embodiment of a belt having a three-layer configuration.

At page 2 of the Office Action, the Examiner points to column 5, lines 56-59 of Schleuter (which teaches a thickness of 25 to 150 μm). However, this thickness pertains to a single layer belt, and not to the thickness of a base layer in a three-layered configuration. The Examiner points to column 8, lines 15-23 of Schleuter for teachings of 25 to 5000 μm and a resistivity of 10^4 to 10^{16} ohm/sq. However, this disclosure of Schleuter pertains to a two-layer configuration.

That is, Schleuter fails to disclose a three-layer configuration having different electric resistance ranges for the base layer and the intermediate layer, such as is set forth in claim 1 of the present invention. *See also* claim 4 of the present invention for the electric resistance of surface coating layer.

At page 3, lines 1-2 of the Office Action the Examiner admits: "Schleuter Jr. does not explicitly teach the intermediate layer is composed of polyurethane." The Examiner then turns to Tanaka for teachings pertaining to polyurethane used in a transfer belt.

However, in his analysis at page 3 of the office action, the Examiner inadvertently confuses an intermediate (image) transfer belt with an intermediate layer of a transfer belt. That is, although Tanaka may discuss more than one covering layer (see Fig. 2 of Tanaka), Tanaka fails to pertain to a true three-layer belt having a base layer, an intermediate layer and a surface coating layer, where each layer has different properties.

That is, neither Schleuter nor Tanaka (alone or in combination) fairly teach or suggest a three-layer configuration having different electric resistance ranges for the base layer and the intermediate layer, such as is set forth in claim 1 of the present invention.

Also, at pages 3 and 4 of the Office Action the Examiner asserts that the claims contain functional language that add process limitations that have little weight in a product claim. However, the claims have been amended to eliminate functional language such that, for example, an electroconductive agent is positively recited in claim 5.

As a result, one having ordinary skill in the art would not be motivated by Schleuter and Tanaka to produce the invention embodied in claim 1. A *prima facie* case of obviousness has not been made. Claims depending upon claim 1 are patentable for at least the above reasons.

The Examiner then turns to Nakazawa for teachings pertaining to flame retardants to reject claim 6. However, these teachings of Nakazawa fail to address the deficiencies of Schleuter and Tanaka in producing a claimed embodiment of the invention.

Further, even if one assumes *arguendo* that the cited art is sufficient to allege obviousness, this obviousness would be fully rebutted by the unexpected results of the present invention. These unexpected results are typified by the Examples of the present invention, which show superior results for variation in electric resistance when compared to Comparative Examples that do not have a three-layer construction (see Table 17 at page 31 of the specification). The advantages of the invention are thus clear.

These rejections are overcome and withdrawal thereof is respectfully requested.

Information Disclosure Statement

The Applicants thank the Examiner for considering the Information Disclosure Statement filed July 14, 2003, and for making the initialed PTO-1449 form of record in the application in the Office Action mailed June 29, 2005.

The Drawings

The Examiner has indicated that the drawing figures are acceptable in the Office Action mailed June 29, 2005.

Conclusion

The Examiner's rejections have been overcome, obviated, or rendered moot. No issues remain. The Examiner is accordingly respectfully requested to place the application in condition for allowance and to issue a Notice of Allowability.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Robert E. Goozner, Ph.D. (Reg. No.42,593) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a one (1) month extension of time for filing a reply in connection with the present application, and the required fee of $120.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

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Respectfully submitted,

By _____

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